Appendix C: Module catalogue

for the study programme Electrical Engineering M.Eng.

Efficient Energy Systems	14
Electrical Power Management	16
Intelligent Energy Systems	18
Colloquium	
Management Skills	20
Master Thesis	21
Human-Machine Interaction	22
Measuring Systems	24
Microcontrollers and Applications	25
Nonlinear Control Systems	26
Project 1	27
Project 2	28
Sensor Systems	29
Smart Grids	30
Theoretical Electrical Engineering	31
Elective Module	33
Compulsory Elective 1	34
Compulsory Elective 2	35
Wide Area Networks and IT Security	36

	cient Ener	gy Systems							EES		
	tification ber:	Workload:	Credits:	Stud	y semes	ster:	Frequency offer	of the	Duration	on:	
202		180 h	6	1st c	r 2nd s	em.	Annual (Summe	r)	1 sem	ester	
	Course:	1	Planned group	sizes	Scop	e	Actual c time / classroo teaching	m	Self-stu	dy	
	Lecture		60 students		2	weekly hours	30	h	60	h	
	Sem. les	ssons 30 students			1	1 weekly	weekly hours	15	h	30	h
	Exercise	;	20 students		0	weekly hours	0	h	0	h	
	Practica	l or seminar	15 students		1	weekly hours	15	h	30	h	
	Supervis	sed self-study	60 students		0	weekly hours	0	h	0	h	
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	Designation of the research or development project Long-term research cooperation "mieletec" with the company Miele & Cie. KG, Research project "NanoInduction"
12	Language: German

Elec	trical Pov	ver Managen	nent						EPM	
Ident numl	ification	Workload:	Credits:	Study	/ semes	ster:	Frequency offer	of the	Duratio	on:
202		180 h	6	1st o	r 2nd s	em.	Annual (Winter)		1 sem	ester
1	Course:		Planned group s	sizes	Scop	е	Actual co time / classroor teaching		Self-stu	dy
	Lecture		60 students		2	weekly hours		h	60	h
	Sem. les	sons	30 students		1	weekly hours	15	h	30	h
	Exercise		20 students		0	weekly hours	0	h	0	h
	Practical	or seminar	15 students		1	weekly hours	15	h	30	h
	Supervis	ed self-study	60 students		0	weekly hours	0	h	0	h
3	- u: th a - le c - u o a: lc Contents - N - S - N - In Lab pra - D m	se the interactive intelligent utomation. The period of th	hemin innovative ction of electrical toontrol and near toonventional colless low-cost are requirements afety, availability dynamics, networker and inspect of redundant contents and took took took took took took took too	al eneretworking ontrol so to the profile ty, cost or so to the cost of the co	gy con ng to o trategi ion and e of an t-effect edback ystem. system ethods d orien eplication	es such dredund optima ctivenes drefectivenes drefectivenes drefectivenes	advantage as fuzzy dant safety lautomates and fleweness of extenses of extenses and three-phages and three-p	ge in pro- control, of y application solut exibility, energy u	cess and observer- tions. ion also as well use and a	product oriented includes as the forward-
	Lecture	e, sem. lesson	s and laboratory	/exerc	isesin	smallgr	oups(3-4	particip	ants)	
5	Participa Formal:	tion requireme Non								
	Content:									
6		assessment:								
7			combination ex		ion or c	oral exa	mination			
7		site for the awa examination	ard of credit points	:						
8	Applicati		ule (in the following	g study	progran	nmes)				
9	Importar	nce of the grad	e for the final grad	e:						
	accord	ing to MRPO								

10	Module Officer: Prof. DrIng. Jan Boris Loesenbeck Other information:
	Literature will be announced at the beginning of the course. Participants must have sufficient knowledge and experience in handling and the safety of electrical equipment. Laboratory exercises on electrical machines and power electronics of the bachelor's degree study programme in electrical engineering should have been completed.
12	Language:
	German

Inte	lligent Ene	ergy Systems -							IES		
lden num	tification ber:	Workload:	Credits:	Stud	y semes		Frequenc offer	y of the	Durati	on:	
202		180 h	6	1st c	r 2nd s	em.	Annual (Winter)		1 sem	1 semester	
1	Course:		Planned group	sizes	Scop	e	Actual of time / classroot teaching	om	Self-stu	ıdy	
	Lecture		60 students		2	weekly hours	30	h	60	h	
	Sem. less	sons	30 students		1	weekly hours	15	h	30	h	
	Exercise		20 students		0	weekly hours	0	h	0	h	
	Practical	or seminar	15 students		1	weekly hours	15	h	30	h	
		ed self-study outcomes/cor	60 students		0	weekly hours	0	h	0	h	
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203	3	180 h	6	3rd	or 4th s	sem.	each ser	nester		
1	Course:		Planned group	sizes	Scop	oe .	Actual of time/cla teaching	ssroom	Self-stu	ıdy
	Lecture		60 students		0	weekly hours	0	h	180	h
	Sem. less	sons	30 students		0	weekly hours	0	h	0	h
	Exercise		20 students		0	weekly hours	0	h	0	h
	Practical	or seminar	15 students		0	weekly hours	0	h	0	h
	Supervise	ed self-study	60 students		0	weekly hours	0	h	0	h
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3	Contents	:								
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567	Disputathe control Forms of Oral example Content: Forms of Oral example Prerequise Application Electrical example Preserved Pr	tion on the protection on the teaching: amination for the None None Treat assessment: amination site for the award on of the modulal Engineerin	the master these the master the master these extrement of the master the mast	preparasis	esis progral	mmes)				
567	Disputathe control Forms of Oral example Content: Forms of Oral example Content: Forms of Oral example Application Electrication and Op	tion on the protection on the protection on the teaching: amination for the None None Treat assessment: amination bite for the away on of the modulal Engineerin timisation and	the master thesents: etment of the master of credit points	preparasis	esis progral	mmes)				
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Mar	nagement	t Skills							MMK	
Iden num	tification	Workload:	Credits:	Study	y semes		Frequency offer	y of the	Durati	on:
200		180 h	6	1st sem	or 21	nd	Annual (Summe	r)	1 sem	nester
1 Course			Planned group	sizes	Scop	e	Actual of time / classroot teaching	om	Self-stu	ıdy
	Lecture		60 students		2	weekly hours	30	h	60	h
	Sem. les	Sem. lessons 30 students			2	weekly hours	30	h	60	h
	Exercise		20 students		0	weekly hours	0	h	0	h
	Practical	l or seminar	15 students		0	weekly hours	0	h	0	h
	Supervis	ed self-study	60 students		0	weekly hours	0	h	0	h
	Students know and ucases. They underst mission. They have They can evaluate the motivate employees of conflict or crisis. T		earned to analy	/SE ent	renren	eurial m	easures	from diff	erent pei	spectives
3	They ca motivat of confl	an evaluate th e employees lict or crisis. Tl	eir own behavio and themselves	our/per s, to wo	rceptio rk succ	n more reessfully	ealistical ina team	ly. They o and to re	can use m act sensi	nethods to
3	They ca motivat of confl Contents Strateg manag occupa econon develop tracking manag	an evaluate the employees lict or crisis. The employees lict or crisis. The ement, social ational safety, nic activities oment and personal control ement, conflicement, c	eir own behavio and themselves	our/pers, to wonnethod otivation and me protect protect erman tegies, ed score	control contro	n more ressfully al sensible neories, plogical anergy alences, in its manad, tech	ealistical in a team bly with hi leaders compete nd resou intercultu agement, nology	hip met ence, ger rce efficural mar self-maexcellen	can use meact sensionads. thods, veneral legaliency, sunagemeranageme ce level,	alues in al issues, stainable at, global change
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4	They camotivate of confliction of confliction of confliction of confliction of a cristic of a cr	an evaluate the employees lict or crisis. The corporate ement, social ational safety, nic activities coment and personal conflictions. It eaching:	eir own behavior and themselves hey can apply not be planning, multiple planning, multiple planning, multiple planning, code of Goroduction strated by balance of the planning, balance of the planning balance of the	our/pers, to wonnethod otivation and me protect protect erman tegies, ed score	coeption rk succesto de sto de	n more ressfully al sensible neories, plogical anergy alences, in its manad, tech	ealistical in a team bly with hi leaders compete nd resou intercultu agement, nology	hip met ence, ger rce efficural mar self-maexcellen	can use meact sensionads. thods, veneral legaliency, sunagemeranageme ce level,	alues in al issues, stainable at, global change
	They camotivate of confliction of confliction of confliction of confliction of a cristic of a cr	an evaluate the employees lict or crisis. The employees lict or crisis. The ement, social ational safety, nic activities oment and pag and controllement, conflicts. If teaching: The es, case studies to require the employees.	eir own behavior and themselves hey can apply not be planning, multiple planning, multiple planning, multiple planning, multiple planning, code of Goroduction strated by the planning, balance of management, bes, exercises onts:	our/pers, to wonnethod otivation and me protect protect erman tegies, ed score	coeption rk succesto de sto de	n more ressfully al sensible neories, plogical anergy alences, in its manad, tech	ealistical in a team bly with hi leaders compete nd resou intercultu agement, nology	hip met ence, ger rce efficural mar self-maexcellen	can use meact sensionads. thods, veneral legaliency, sunagemeranageme ce level,	alues in al issues, stainable at, global change
4	They camotivate of confliction of confliction of confliction of confliction of confliction of a cristic participation of a cristic participation of a cristic participation of confliction	an evaluate the employees lict or crisis. The employees lict or crisis. The ement, social ational safety, nic activities oment and pag and control ement, conflicts. If teaching: es, case studies tion requirement in the employees is a second in the employees in the employees in the employees is a second in the employees in the emplo	eir own behavior and themselves hey can apply not be planning, multiple planning, multiple planning, multiple planning, multiple planning, code of Goroduction strated by the planning, balance of management, bes, exercises onts:	our/pers, to wonnethod otivation and more protect erman tegies, ed sconstress	ception rk succestode stode st	n more ressfully al sensition neories, ological contracts, interested to the mana district mana	ealistical in a team bly with hi leaders compete nd resou intercultu agement, nology gement, gement,	hip met ence, ger rce efficural mar self-maexcellen	can use meact sensionads. thods, veneral legaliency, sunagemeranageme ce level,	alues in al issues, stainable at, global change
4 5	They camotivate of confliction of confliction of confliction of confliction of confliction of a cristion of a cristion of a cristion of a cristion of confliction of confli	an evaluate the employees lict or crisis. The employees lict or crisis. The ement, social ational safety, nic activities oment and particular and control ement, conflicts. If teaching: es, case studies tion requireme None of assessment: examination, site for the aware examination.	eir own behavior and themselves hey can apply not be planning, must be planning, balance of the planning balance of the planni	our/pers, to wonnethod otivation protection protection tegies, ed scores stress.	coeption rk success to de sto	n more ressfully al sensite neories, ological ences, in technic mana district mana dis	ealistical in a team bly with hi leaders compete nd resou intercultu agement, nology gement, gement,	hip met ence, ger rce efficural mar self-maexcellen	can use meact sensionads. thods, veneral legaliency, sunagemeranageme ce level,	alues in al issues, stainable at, global change
5	They camotivate of confliction of confliction of confliction of confliction of confliction of a cristion of a cristian of a cris	an evaluate the employees lict or crisis. The employees lict or crisis. The ement, social ational safety, nic activities oment and pag and control ement, conflicts. If teaching: It examination, site for the aware examination, on of the modular ement.	e planning, m , professional a environmental a, code of G roduction stra olling, balance thanagement, es, exercises nts: e combination ex pass ule (in the following g M.Eng., Mech	our/pers, to wonnethod otivation of the protect of	onal the thodo tion, e refere car and time tion or o	n more ressfully al sensite neories, ological cances, interest mana d, tech ne mana	ealistical in a team oly with hi leaders compete nd resou intercultu agement, nology gement, mination	hip meterned by task long and to regard to regard to regard to receive the rec	thods, value of the control of the c	alues in al issues, stainable th, global nt, target the event
4 5 6 7	They camotivate of confliction of confliction of confliction of confliction of confliction of confliction of a cristic participal formal: Content: Forms of Lecture Participal Formal: Content: Forms of Written Prerequi Module Application Electric M.Sc.	an evaluate the employees lict or crisis. The employees lict or crisis. The ement, social ational safety, nic activities oment and pay and control ement, conflicts. If teaching: If t	eir own behavior and themselves hey can apply not be planning, mand, professional and environmental solding, balance of the production strated by the planning of the planning balance of the planning	our/pers, to wonnethod otivation of the protect of	onal the thodo tion, e refere car and time tion or o	n more ressfully al sensite neories, ological cances, interest mana d, tech ne mana	ealistical in a team oly with hi leaders compete nd resou intercultu agement, nology gement, mination	hip meterned by task long and to regard to regard to regard to receive the rec	thods, value of the control of the c	alues in al issues, stainable th, global nt, target the event
4 5 6 7 8	They camotivate of confine the confine terms of a crist participal formation of a crist partic	an evaluate the employees lict or crisis. The employees lict or crisis. The ement, social ational safety, nic activities oment and pag and control ement, conflicts. If teaching: In the examination on of the modular examination on of the modular end to MRPO Officer:	e planning, m per planning, m per planning, m professional a environmental per can apply n professional a environmental per can apply n professional a environmental per can apply n professional a environmental production stra plance production stra pla	our/pers, to wonnethod otivation of the protect of	onal the thodo tion, e refere car and time tion or o program	n more ressfully al sensite neories, ological cances, interest mana d, tech ne mana	ealistical in a team oly with hi leaders compete nd resou intercultu agement, nology gement, mination	hip meterned by task long and to regard to regard to regard to receive the rec	thods, value of the control of the c	alues in al issues, stainable thange the event
4 5 6 7 8	They camotivate of confile con	an evaluate the employees lict or crisis. The employees lict or crisis. The ement, social ational safety, nic activities oment and pag and control ement, conflicts. If teaching: It examination, site for the award examination on of the modulated Engineerin and the grade ing to MRPO Officer: Ing. Bruno Formation:	e planning, m per planning, m per planning, m professional a environmental per can apply n professional a environmental per can apply n professional a environmental per can apply n professional a environmental production stra plance production stra pla	our/pers, to wonnethod otivation and more protective erman tegies, and score stress. caminates: g study anical Ele:	coeption rk success to de constant the constant the constant time consta	n more restricted in the mana mana mana mana mana mana mana man	ealistical in a team oly with hi leaders compete nd resou intercultu agement, nology gement, compete mination Sc. and C	hip meterned by task long and to regard to regard to regard to receive the rec	thods, value of the control of the c	alues in al issues, stainable th, global nt, target the event

Mas	ster Thesis	;								M.A.	
Ident numl	tification ber:	Worklo	oad:	Credits:	Study	y semes	ster:	offer	cy of the	Durati	on:
203	4	720 h	l	24	3rd o	or 4th s	sem.	each se	emester	20 we	eeks
1	Course:			Planned group s	sizes	Scop	oe .		contact lassroom ng	Self-stu	ıdy
	Lecture			60 students		0	weekly hours	['] 0	h	720	h
	Sem. less	sons		30 students		0	weekly hours	′ O	h	0	h
	Exercise			20 students		0	weekly hours	, O	h	0	h
	Practical	or semir	nar	15 students		0	weekly hours	′ O	h	0	h
	Supervise	ed self-s	tudy	60 students		0	weekly hours	['] 0	h	0	h
	specific scientifi	details c meth	and ii	s/her subject a n the interdisci	plinary	conte	xts, worl	king ind	ependent	y and ac	cording to
3	progran empiric	ster the nme wi al inves	th a de tigatio	n independent escription and e n or by concep se forms is poss	explana tualor	ation o	f its solu	ution. It d	can also be	e determi	ined by ar
4	Forms of Written			vith faculty tuto	rina						
5	Participat		uiremen	ts:	71119						
	Formal: Content:		None	dinated topic fr	om the	o otudo	nt'o on o	منمامینه	icotoroo		
6	Forms of	assessn		amated topic ii	On the	stude	iii s spe	ziaisub	jectalea		
7	Prerequis	site for th	ne awar	d of credit points	:						
8	Electric and Op	al Engir timisati	neering on and	e (in the following gM.Eng., Resea l Simulation M.S	rch Ma Sc.		-	ence, Me	echanical E	ngineerii	ng M.Sc.
9	Importan accordi		•	for the final grad	e:						
10	Module (
11	Other inf			ounced at the b	eginniı	ng of th	ne cours	e.			
12	Languag Germar	e:									

Hum	nan-Mach	nine Interactic	n							MMI	
	ification per:	Workload:		Credits:	Study	semes	ter:	Frequency offer	of the	Duration	:
203			180 h 6 1st o		1st or	2nd s	em.	Annual (Winter)		1 semes	ster
1	Course:		Pl	anned group si	izes	Scope	<u>.</u> Э	Actual co time / classroon teaching		Self-study	1
	Lecture		60) students		0	weekly hours	0	h	0	h
	Sem. less	Sem. lessons 30 students			4	weekly hours	60	h	120	h	
	Exercise		20) students		0	weekly hours	0	h	0	h
	Practical	or seminar	15	students		0	weekly hours	0	h	0	h
	Supervise	ed self-study	60) students		0	weekly hours	0	h	0	h
2	Loorning	outcomes/com	anot	oncoo							

2 Learning outcomes/competences

Students design, implement and evaluate human-machine interfaces in a methodical way. In doing so, they observe and use the possibilities and limits of the human being and take into account the applicable standards and regulations. They assess which design approaches and which technical ways of implementation can be expected to be effective and efficient. They can develop the components of such human-machine interfaces on the basis of existing hardware and software libraries and turn them into a functional system that has been tested.

3 Contents:

- Continuous theme: Applications related to electrical engineering and in particular power engineering (building automation, smart home, demand-side management, electric vehicles, grid control, control and maintenance,...)
- Models of human perception and action
- Attention, human error
- Disabilities and accessibility
- Quality characteristics, standards, basic concepts, procedure models
- Methods of requirements analysis, design and prototyping of human-machine interfaces
- Methods for the investigation of human-machine interfaces, statistical evaluation
- Overview of programming techniques: event-based programming, web programming, multi-touch programming
- Sensors and actuators for mobile computing and pervasive computing
- Virtual reality and augmented reality
- Information visualisation
- Persuasive computing, gamification
- Basic concepts and applications of machine learning for "intelligent" human-machine interfaces

The development of solutions for partial aspects of problems from practice, integration and testing in experiments is integrated into the seminar. Development platform: current PC peripherals and/or smartphone/tablet technology.

- 4 Forms of teaching:
 - Sem. lessons
- 5 Participation requirements:

	Formal:	None
	Content:	None
6	Forms of assessr	nent:
	Written examir	nation or oral examination
7	Prerequisite for t	he award of credit points:
	Module exami	nation pass
8	Application of th	e module (in the following study programmes)
	Electrical Engi	neering M.Eng.
9		e grade for the final grade:
	according to M	1RPO
10	Module Officer:	
	Prof. Dr. rer. na	t. Jörn Loviscach
11	Other information	ղ։
	Literature will b	be announced at the beginning of the course.
12	Language:	
	German	

Mea	suring Sy	stems								MSS	
Ident num!	ification per:	Worklo	ad:	Credits:	Study	y semes	ster:	Frequency	of the	Durati	on:
2019		180 h		6	1st o	r 2nd s	em.	Annual (Summer)	1 semeste	
1	Course:			Planned group	sizes	Scop	e	Actual continue / classroom		Self-stu	ıdy
	Lecture			60 students		2	weekly hours		h	60	h
	Sem. less	sons		30 students		1	weekly hours	15	h	75	h
	Exercise			20 students		0	weekly hours	0	h	0	h
	Practical			15 students		0	weekly hours		h	0	h
2	Supervise Learning		,	60 students		0	weekly hours	0	h	0	h
3	- Development - Problements	ed signa opment em solvi	l proce compe	essing, especi etence of virtu s in a team	-				ns		
	DigitaCorrelAuton	l signal p lation m nation o mentation	oroces easure f meas on of th	naltheory sing ment technol uring and sen e systems on	sorsys		ors				
4		, semina ic projed	ar teach ct in sm	nall groups (2 t	03)						
5	Participat Formal: Content:		None None	S:							
6		examina	ation or	oral examina							
7	Module	examin	ation p	d of credit points ass (in the following		program	nmos)				
8 —— 9	Electric	al Engin	eering	•	,	progran	nines)				
9 10	accordi Module (ng to MI	•	S. alo ililai grac							
11		-Ing. Th		<i>Nesterwalbes</i>	loh						
				unced at the b ve their own li	_	-			dy		
12	Language	e:									

Mic	rocontrolle	ers and Appli	cations						MIC	
	tification	Workload:	Credits:	Study	y seme		Frequenc	y of the	Durat	on:
num 202		180 h	6	1st o	r 2nd s	sem.	offer Annual (Winter)		1 sem	nester
1	Course:		Planned group	sizes	Scope		Actual of time / classroot teachin	om	Self-stu	ıdy
	Lecture		60 students		2	weekly hours	30	h	60	h
	Sem. less	sons	30 students		1	weekly hours	15	h	30	h
	Exercise		20 students		0	weekly hours	0	h	0	h
	Practical	or seminar	15 students		1	weekly hours	15	h	30	h
	Supervised self-study Learning outcomes/d		60 students		0	weekly hours	0	h	0	h
	and also	o apply exter	nal measurem	ent tech	nnolog	y safely.	Using ty	pical app	lication e	examples
3	student them. Contents MC arcl MC pro Analogu	s identify the : hitecture gramming ue and digital	characteristics	s of diff	erent a	nalogue	and dig			
	student them. Contents MC arcl MC pro Analogo Digital p Practica	s identify the hitecture gramming ue and digital processing ar als: and build mice	characteristics	s of diffe	erent a	nalogue ment dat	and dig	jtal interf	aces and	•
4	student them. Contents MC arcl MC pro Analogu Digital p Practica Design a Forms of Lecture	s identify the : hitecture gramming ue and digital processing ar als: and build mid teaching: , sem. lesson	characteristics interfaces ad dissemination crocontroller ap	on of me	erent a	nalogue ment dat	and dig	jtal interf	aces and	
	student them. Contents MC arcl MC pro Analogu Digital p Practica Design a Forms of Lecture Participat Formal: Contents	s identify the hitecture gramming ue and digital processing ar als: and build mid teaching: , sem. lesson tion requireme None	interfaces and dissemination crocontroller approximates	on of me	erent a	nalogue ment dat	and dig	jtal interf	aces and	
4 5 6	student them. Contents MC arcl MC pro Analogu Digital procession. Forms of Lecture Participat Formal: Contents MC arcl MC pro Analogu Digital procession.	s identify the iterature gramming ue and digital processing ar als: and build mid teaching: , sem. lesson: tion requirement None assessment: or oral exami	interfaces and dissemination crocontroller apos, practical counts:	on of me	asurer	ment data	a and dig	igital peri	phery	
4567	student them. Contents MC arcl MC pro Analogu Digital p Practica Design Forms of Lecture Participal Formal: Content: Forms of Written Prerequis Module	s identify the hitecture gramming ue and digital processing ar als: and build mid teaching: , sem. lesson: tion requireme None None assessment: or oral exami examination	interfaces interfaces and dissemination crocontroller apples, practical counts: and and an anion; in each and of credit point pass with prelices	on of me polication rse case with s: minary e	asurer	ment data manalogue	a and dig	igital peri	phery	
4 5 6	student them. Contents MC arcl MC production Analogue Digital production and the street of the stre	s identify the chitecture gramming ue and digital processing ar als: and build mid teaching: sem. lesson tion requireme None assessment: or oral exami site for the awa examination on of the modu al Engineerin	interfaces and dissemination crocontroller apples, practical counts: and of credit point pass with prelinule (in the following M.Eng.	en of me polication rse case with s: minary e	asurer	ment data manalogue	a and dig	igital peri	phery	
4567	student them. Contents MC arcl MC pro Analogu Digital procession Forms of Lecture Participat Formal: Content: Forms of Written Prerequis Module Application Electric Importan accordi	s identify the hitecture gramming ue and digital processing ar als: and build mid teaching: , sem. lesson: tion requireme None assessment: or oral exami site for the awa examination on of the modu al Engineerin ce of the grade ng to MRPO	interfaces and dissemination crocontroller apples, practical counts: e nation; in each rd of credit point pass with prelii	en of me polication rse case with s: minary e	asurer examir	ment data manalogue	a and dig	igital peri	phery	
4 5 6 7 8	student them. Contents MC arcl MC production Analogue Digital production Forms of Lecture Participal Formal: Content: Forms of Written Prerequising Module Application Electrical Importantian according Module (Contents)	s identify the initecture gramming ue and digital processing ar als: and build mid teaching: , sem. lesson: tion requireme None assessment: or oral exami site for the awa examination on of the modu al Engineerin ce of the grade ng to MRPO Officer:	interfaces and dissemination crocontroller ap s, practical counts: e nation; in each rd of credit point pass with prelii lle (in the followin g M.Eng. e for the final grad	en of me polication rse case with s: minary e	asurer examir	ment data manalogue	a and dig	igital peri	phery	
4 5 6 7 8	student them. Contents MC arcl MC pro Analogue Digital procession Forms of Lecture Participate Formal: Content: Forms of Written Prerequise Module Application Electric Important according Module Contenting Mod	chitecture gramming ue and digital processing ar als: and build mid teaching: sem. lesson tion requireme None assessment: or oral exami site for the awa examination on of the modu al Engineerin ce of the grade ng to MRPO Officer: -Ing. Thomas ormation:	interfaces and dissemination crocontroller ap s, practical counts: e nation; in each rd of credit point pass with prelii lle (in the followin g M.Eng. e for the final grad	case wing study de:	asurer onswith	ment data manalogue iminary e mation mmes)	a and dig	igital peri	phery	

Nor	nlinear Co	ntrol Systems	3						NLR	
	tification ber:	Workload:	Credits:	Stud	y semes	ster:	Frequenc offer	y of the	Durati	on:
202		180 h	6	1st c	r 2nd s	sem.	Annual (Summe	r)	1 sem	nester
1	Course:		Planned group	sizes	Scop	e	Actual of time / classroot teaching	om	Self-stu	ıdy
	Lecture		60 students		2	weekly hours		h	60	h
	Sem. less	sons	30 students		1	weekly hours	15	h	30	h
	Exercise		20 students		0	weekly hours	0	h	0	h
	Practical or seminal Supervised self-stu		15 students		1	weekly hours	15	h	30	h
		ed self-study outcomes/con	60 students		0	weekly hours	0	h	0	h
			proceduresfor , concentrated				syntnesi	S OF CONT	oi syster	nsana
	- Contr Synthe: - Exact	unov stability ollability and	observability ar control syste linearisation ation	·ms:						
4		teaching: , sem. lesson	s, practical cou	rse						
5	Participa Formal: Content:	tion requireme None None	Э							
6	Written		or oral examina							
7	Module	examination								
8	BioMed	hatronics M.	ule (in the followin Sc. and Electric	al Engir	-					
9		ing to MRPO	e for the final grad	ue:						
		Officer.								
		Ing. Dirk We	eidemann							
10 11 12	Other inf	formation: Ire will be ann	ounced at the b	peginni	ng of th	ne cours	Э.			

Proje	ect 1								PRE1	
Identi	ification	Workload:	Credits:	Stud	y semes	ster:	Frequency offer	of the	Duration	on:
2024		180 h	6	1st o	r 2nd s	sem.	Annual (Summer)	1 sem	ester
1	Course:		Planned group	sizes	Scop	e	Actual contact time / classroom teaching		Self-stu	dy
	Lecture		60 students		0	weekly hours	_	h	0	h
	Sem. less	sons	30 students		0	weekly hours	0	h	0	h
	Exercise		20 students		0	weekly hours	0	h	0	h
	Practical or seminar Supervised self-study Learning outcomes/c		15 students		1	weekly hours	15	h	165	h
			60 students		0	weekly hours	0	h	0	h
	- Comn			g						
3	speciali - Projec - Comn - Knowl - Litera - Engin	ndent solving sation. et manageme nunication edge manag ture review eering work		d devel	opmer	nt tasks i	n the resp	ective cl	nosen	
4		teaching:	l-3 participants	3						
5		ion requirement None	nts:							
6	Combir	assessment: nation exam								
7	Module	examination								
8	Electric	al Engineerin			progran	mmes)				
9	accordi Module (ng to MRPO Officer:	e for the final grac	de:						
11	Other info		lke ounced at the b	eginni	na of th	ne cours	e.			
12	Language German	e:		9 II II III		.5 55615	<u> </u>			

Proj	ect 2								PRE2	
	tification	Workload:	Credits:	Stud	y seme:	ster:		cy of the	Durati	on:
num 203		180 h	6	1st c	r 2nd s	sem.	offer Annual (Winter		1 sem	ester
1	Course:		Planned group	sizes	Scop	De .	Actual time / classro teaching		Self-stu	idy
	Lecture		60 students		0	weekly	_	h	0	h
	Sem. less	sons	30 students		0	weekly hours	0	h	0	h
	Exercise		20 students		0	weekly hours	0	h	0	h
	Practical or seminar Supervised self-study		15 students		1	weekly hours	15	h	165	h
			60 students		0	weekly hours	0	h	0	h
3	Contents Indeper speciali - Projec - Comn - Knowl	onnected thi : ndent solving			opmer	nt tasks i	n the res	spective c	hosen	
		eering work								
4	Forms of	teaching:	1–3 participants	3						
5		tion requireme None None	nts: Ə							
6	Project									
		site for the awa examination								
7			g study	progra	mmes)					
7	Application Electric	on of the modu al Engineerin	g M.Eng.							
	Application Electrical Importan	on of the modu al Engineerin ce of the grade		de:						
8	Application Electricon Important accordi Module (on of the modu al Engineerin ce of the grade ng to MRPO Officer:	g M.Eng. e for the final grad	de:						
8	Application Electricon Important accordi Module (Prof. Dr. Other info	on of the modulal Engineering of the gradeing to MRPO Difficer: -Ing. Dirk Zieormation:	g M.Eng. e for the final grad		ng of th	ne cours	e.			

	sor Syster	ms							SSY	
ldent numb	ification	Workload:	Credits:	Study	/ semes	ster:	Frequency offer	of the	Durati	on:
202		180 h	6	1st o	r 2nd s	em.	Annual (Winter)		1 sem	nester
1	Course:		Planned group :	sizes	Scop	e	Actual c time / classroo teaching	m	Self-stu	ıdy
	Lecture		60 students		2	weekly hours	30	h	60	h
	Sem. less	sons	30 students		1	weekly hours	15	h	30	h
	Exercise Practical or seminar Supervised self-study Learning outcomes/c		20 students		0	weekly hours	0	h	0	h
			15 students		1	weekly hours		h	30	h
			60 students		0	hours weekly hours	0	h	0	h
3	Contents 1. Analo			TICTOCO	ontrolle	rs analy:	sea.			
	- Pi	otation rate s ressure senso lagnetic field	ensors ensors ors							
	_	tal processing	g of sensor sign		ouplin	gs				
	3. Sens	tal processing sor interfaces als:	g of sensor signa and microcont	roller c			icrocontr	oller boa	urd	
4	3. Sens Practica Design Forms of	tal processing sor interfaces als: and constructed teaching:	g of sensor signa and microcont ction of a sensor	roller c applic			icrocontr	oller boa	ırd.	
	3. Sens Practica Design Forms of Lecture	tal processing sor interfaces als: and construct teaching:	g of sensor signals and microcont stion of a sensor s, practical cour	roller c applic			icrocontr	oller boa	ırd.	
4 5	3. Sens Practica Design Forms of Lecture	tal processing sor interfaces als: and construct teaching: sem. lesson tion requirement None	g of sensor signals and microcont stion of a sensor s, practical cournts:	roller c applic			icrocontr	oller boa	ırd.	
5	Practica Design Forms of Lecture Participat Formal: Content:	als: and constructeaching: sem. lessontion requirement None	g of sensor signals and microcont stion of a sensor s, practical cournts:	roller c applic			icrocontr	oller boa	ırd.	
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5	Practica Design Forms of Lecture Participat Formal: Content: Forms of Written examin Prerequis	tal processing sor interfaces als: and construct teaching: sem. lesson tion requirement None assessment: examination, ation performsite for the aways and the semination performsite for the aways and the semination performs	g of sensor signals and microcont stion of a sensor s, practical courants: e combination expand of credit points	applicase	ation u	sing a m				nary
5	Practica Design Forms of Lecture Participat Formal: Content: Forms of Written examin Prerequis Module Application	als: and constructeaching: s, sem. lesson None None assessment: examination, ation perform site for the awa examination on of the mode	g of sensor signals and microcont stion of a sensor s, practical cournts: e combination expanded of credit points pass with prelinule (in the following	applicase	ation u	sing a m				nary
5 6 7	Practication Practication Porms of Lecture Participation Formal: Content: Forms of Written examin Prerequision Module Application Electric	als: and constructeaching: assem. lesson None None assessment: examination, ation perform site for the awa examination on of the modulal Engineering	g of sensor signals and microcont stion of a sensor s, practical cournts: e combination expanded of credit points pass with prelinule (in the following	applicase	ation u	sing a m				nary
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5 6 7 8	Practica Design Forms of Lecture Participal Formal: Content: Forms of Written examin Prerequis Module Applicatic Electric Importan accordi Module (Prof. Dr.	als: and construct teaching: sem. lesson tion requirement None assessment: examination, ation performs te for the aware examination on of the modulal Engineering to MRPO Officer:Ing. Dirk Zie.	g of sensor signals and microcont stion of a sensor s, practical courants: e combination expanded for credit points pass with prelinule (in the following g M.Eng.	applicase	ation u	sing a m				nary
5 6 7 8	Practication Design Forms of Lecture Participation Formal: Content: Forms of Written examin Prerequision Module Application Electric Important according Module of Prof. Dr. Other inf	als: and constructeaching: s, sem. lesson tion requireme None assessment: examination, ation perform site for the awa examination on of the modu al Engineerin ce of the grade ng to MRPO Officer:Ing. Dirk Zie ormation:	g of sensor signals and microcont stion of a sensor s, practical courants: e combination expanded for credit points pass with prelinule (in the following g M.Eng.	applicase caminate caminate caminate caminate caminate caminary e caminate	ation u	oral exar	mination;			nary

Sma	rt Grids								SG	
ldent numb	ification	Workload:	Credits:	Study	/ semes	ter:	Frequency	of the	Duratio	on:
2022		180 h	6	1st o	r 2nd s	em.	Annual (Summe	r)	1 sem	ester
1	Course:		Planned group	sizes	Scop	е	Actual of time / classroot teaching	m	Self-stud	dy
	Lecture		60 students		2	weekly hours		h	55	h
	Sem. less	sons	30 students		1	weekly hours	15	h	22.5	h
	Exercise Practical or seminar		20 students		0	weekly hours	0	h	0	h
	Practical or seminar Supervised self-study		15 students		1	weekly hours	15	h	22.5	h
	Supervise	ed self-study	60 students		0	weekly hours	0	h	0	h
	verificat - Ass - Plai	cion using a si sessment of s nning and ver smart storage	egration and d mulation with a ystem security ification of the s s, smart generat supply systems	focus of and net system tion and	on: twork s integra	ecurity ation of o	decentral			
3	manage System	ent electrical e ement system monitoring a	energy systems ns. nd identification ransmission pro	n of criti	icalsitu	uations.		·		
4	Forms of Lecture		ns and practica	ls						
5	Participat	ion requireme	nts:							
	Formal: Content:	equi ¹ Mod 1060	ule 1060, Electi valent		tworks	from BA	\ degree	programi	meRGEc	or
6		assessment: aper, oral exa	mination or exa	minatic	n acco	mpanyi	ng the co	urse		
7	Prerequis	site for the awa	rd of credit points pass and cours	S:			<u> </u>			
8	Application		le (in the following							
9	Importan		e for the final grad	de:						
10	Module (Officer: -Ing. Jens Ha	aubrock							
11	Other info	ormation:	holz/Styczynsk	i						
12	Language German	e:					_		_	_

The	oretical El	ectrical Engi	neering						TET	
	tification	Workload:	Credits:	Stud	y semes		Frequency	of the	Durati	on:
numl 2018		180 h	6	1st c	or 2nd s	em.	offer Annual (Winter)		1 sem	nester
1	Course:		Planned group	sizes	Scop	e	Actual co time / classroor teaching		Self-stu	ıdy
	Lecture		60 students		2	weekly hours	30	h	60	h
	Sem. less	sons	30 students		2	weekly hours	30	h	60	h
	Exercise Practical or seminar Supervised self-study		20 students		0	weekly hours	0	h	0	h
			15 students		0	weekly hours	dy O	h	0	h
			60 students		0	weekly hours	0	h	0	h
3	Contents		basics and tools	3						
3	- W - W - W el	lathematical laxwell's equ lagneto- and lectromagne icromagnetis		ion in ii slow-va omagne	arying e etic wav	electric a ves, edd	and magn y currents	etic field s, inducti	on, nano	- and
3	- M - M - W el m - TI	lathematical laxwell's equ lagneto- and lectromagne nicromagnetis heoretical de ansistors,)	ations: Formulat electrostatics, s tic fields, electro sm scription of sem	ion in ii slow-va omagne nicondu	arying e etic wav uctor de	electric a ves, edd evices(p	and magn y currents on-, Schot	etic field s, inducti	on, nano	- and
3	- M - N - N - N - N - TI - TI - C - TI - Fi - P	lathematical laxwell's equinagneto- and lectromagneto- icromagneto- icromagneto- icromagneto- ensistors,) computational heory and prainite Elementossibilities ar	ations: Formulat electrostatics, s tic fields, electro sm scription of sem al methods in the actice of numeri Method (FEM) e ad limits of nume	cion in inicolorization in inicolorization de conduction d	arying e etic wav uctor de al electi nulation	electrica ves, edd evices(p rical eng method	and magn y currents on-, Schot ineering	etic field s, inducti tky junc	on, nano	- and effect
3	- M - N - N - N - N - II - TI - C - TI - Fi - P - A	lathematical laxwell's equal laxwell's equal lactromagnetic heoretical de ansistors,) computational heory and prainite Element ossibilities ar pplication existers.	ations: Formulat electrostatics, s tic fields, electro sm scription of sem at methods in the actice of numeri Method (FEM) e ad limits of nume amples	cion in inicolorization in inicolorization de conduction d	arying e etic wav uctor de al electi nulation	electrica ves, edd evices(p rical eng method	and magn y currents on-, Schot ineering	etic field s, inducti tky junc	on, nano	- and effect
4	- M - N - N - N - N - N - II - TI - TI - Ti - A - A - A - Forms of - Lecture - Participa - Formal:	lathematical laxwell's equinagmento- and lectromagnetis heoretical de ansistors,) computational heory and prainite Element ossibilities ar pplication exite teaching: e, exercise, pration requirementos laxues ar polication exite exercise, pration requirementos equirementos exercise, pration requirementos exercise, pration requirementos exercise, pration requirementos exercise, pration requirementos exercises	ations: Formulated lelectrostatics, stic fields, electrostatics strain scription of seme actice of numerical Method (FEM) end limits of numericamples actical course actical course ents:	cion in inicolorization in inicolorization de conduction d	arying e etic wav uctor de al electi nulation	electrica ves, edd evices(p rical eng method	and magn y currents on-, Schot ineering	etic field s, inducti tky junc	on, nano	- and effect
	- M - N - N - N - N - N - N - N - N - N - N	lathematical laxwell's equidagneto- and lectromagnetic heoretical de ansistors,) computational heory and prainite Element ossibilities ar pplication existencies, exercise, prainite medianismos la proposition requiremedianismos la proposition requirementation requirementatio	ations: Formulated lelectrostatics, stic fields, electrostatics, stic fields, electrostatics are represented in the actice of numerical Method (FEM) end limits of numerical course actical course ents:	cion in il slow-va omagne nicondu eoretica ical sim etc.)	arying e etic wav uctor do al electi nulation ethods	electric a ves, edd evices (p rical eng methoc	and magn y currents on-, Schot ineering	etic field s, inducti tky junc	on, nano	- and effect
4 5 6	- M - N - N - N - N - N - N - N - N - N - N	lathematical laxwell's equal lagneto- and lectromagnetic heoretical de ansistors,) computational heory and prainite Element cossibilities an application existe sexercise, prainite median requireme None assessment:	ations: Formulat l electrostatics, s tic fields, electro sm scription of sem ll methods in the actice of numeri Method (FEM) e ad limits of nume amples actical course nts: e e examination or c ard of credit points	combin	arying e etic wav uctor do al electi nulation ethods	electric a ves, edd evices (p rical eng methoc	and magn y currents on-, Schot ineering	etic field s, inducti tky junc	on, nano	- and effect
4 5 6 7	- W - W - W - W - W - W - W - W - W - W	lathematical laxwell's equivalent of the ansistors,) computational heory and prainite Element ossibilities an application existence in the examination on of the modula ansistors,)	ations: Formulated lelectrostatics, stic fields, electrostatics, stic fields, electrostatics and methods in the actice of numerical Method (FEM) end limits of numeramples actical course electrostatics actical course and of credit points passuale (in the following	combin	arying e etic wav uctor de al electi nulation ethods	electric aves, edd evices (prical engormethod	and magn y currents on-, Schot ineering	etic field s, inducti tky junc	on, nano	- and effect
4 5 6 7 8	- M - N - N - N - N - N - N - N - N - N - N	lathematical laxwell's equivalent of the award of the modulation of the modulation of the grade	ations: Formulated lelectrostatics, stic fields, electrostatics, stic fields, electrostatics and methods in the actice of numerical Method (FEM) end limits of numeramples actical course electrostatics actical course and of credit points passuale (in the following	combines	arying e etic wav uctor de al electi nulation ethods	electric aves, edd evices (prical engormethod	and magn y currents on-, Schot ineering	etic field s, inducti tky junc	on, nano	- and effect
4 5	- M - N - N - N - N - N - N - N - N - N - N	lathematical laxwell's equal lagneto- and lectromagnetic heoretical de ansistors,) computational heory and prainite Element ossibilities are pplication exite teaching: a exercise, prainite Element lossibilities are pplication exite exercise, prainite Element la None la examination on of the modular Engineering to MRPO Officer:	ations: Formulated lelectrostatics, stic fields, electrostatics, stic fields, electrostatics and methods in the actice of numerical Method (FEM) end limits of numeramples actical course electrostatics actical course	combines	arying e etic wav uctor de al electi nulation ethods	electric aves, edd evices (prical engormethod	and magn y currents on-, Schot ineering	etic field s, inducti tky junc	on, nano	- and effect

	Literature will be announced at the beginning of the course.
12	Language:
	German

Elec	tive Modu	ıle								WM	
Ident numl	ification per:	Workload:		Credits:	Study	/ semes	ter:	Frequency offer	of the	Duration	1:
902		180 h		6	1st o	r 2nd s	em.	each sem	ester	1 seme	ster
1	Course:		Pla	anned group s	izes	Scope	Э	Actual co time / classroor teaching		Self-study	/
	Lecture		60) students			weekly hours	,	h		h
	Sem. lessons				weekly hours	,	h		h		
	Exercise		20 students				weekly hours	,	h		h
	Practical	or seminar	15	students		0	weekly hours	0	h	0	h
	Supervise	ed self-study	60) students			weekly hours	,	h		h
2	Learning	outcomes/con	npet	ences:							
3	Contents	:									
4	Forms of	teaching:									
5	Participat Formal: Content:	ion requireme	nts:								
6	Forms of	assessment:									
7	Prerequis	site for the awa	ırd o	f credit points:							
8	Electrica	on of the modu al Engineerin	gΜ	.Eng.		progran	nmes)				
9		ce of the grade	e for	the final grade	e:						
10	Module (Prof. Dr.	Officer: -Ing. Dirk Zie	lke								
11	Other info	ormation:									
12	Language German										

Con	npulsory E	Elective	1							WPF1	l
	ification	Worklo	oad:	Credits:	Stud	y semes	ster:	Frequenc	y of the	Duration	on:
numl 202		180 h		6	1st o	r 2nd s	sem.	offer Annual (Summe	r)	1 sem	ester
1	Course:			Planned group s	sizes	Scop	e	Actual of time / classroot teaching	om	Self-stu	dy
	Lecture			60 students		0	weekly hours	0	h	0	h
	Sem. lessons Exercise Practical or seminar			30 students		4	weekly hours	60	h	120	h
				20 students		0	weekly hours		h	0	h
				15 students		0	weekly hours	0	h	0	h
	Supervise			60 students		0	weekly hours	0	h	0	h
2	Learning	outcom	es/com _l	petences:							
3	Contents										
4	Forms of	teaching	g:								
5	Participat	ion requ		ts:							
	Formal:		None								
	Content:		conse Appli select speci	ents can atter ecutive master ed Sciences b ted module m alisation taken.	's deg y prio nust n	ree st r arran	udy pro gement	ogramme t with the	s at Biel progran	efeld Uni nme dire	iversity of ctors. The
6	Forms of										
7	Module	examir	nation p								
8	Electric	al Engir	neering			prograi	mmes)				
9	accordi	ng to M	•	for the final grad	e:						
10	Module (Prof. Dr.		irk Ziell	ke							
11	Other info	ormation	!	ounced at the b	eginni	ng of th	ne cours	e.			
12	Language German										

Con	npulsory E	Elective	2							WPF	2
	tification	Worklo	oad:	Credits:	Stud	y seme	ster:	Frequenc	cy of the	Durati	on:
numl 203		180 h		6	1st c	r 2nd s	sem.	offer Annual (Winter)		1 sem	nester
1	Course:			Planned group	sizes	Scop	oe	Actual of time / classroot teaching	om	Self-stu	ıdy
	Lecture			60 students		0	weekly hours	0	h	0	h
	Sem. lessons Exercise Practical or seminar			30 students		4	weekly hours	00	h	120	h
				20 students		0	weekly hours		h	0	h
				15 students		0	weekly hours		h	0	h
	Supervise		-	60 students		0	weekly hours	0	h	0	h
2	Learning	outcom	es/com	petences:							
3	Contents	!									
4	Forms of	teaching	g:								
5	Participat	ion requ									
	Formal:		None								
	Content:		conse Appli selec speci	ents can atter ecutive master ed Sciences b ted module n alisationtaken	r's deg by prio nust n	ree st r arran	udy pro igement	ogramme t with the	es at Biel e progran	efeld Un nme dire	iversity of ectors. The
6	Forms of										
7	Module	examir	nation p								
8	Electric	al Engir	neering			prograi	mmes)				
9	accordi	ng to M	•	for the final grac	le:						
10	Module (Prof. Dr.	-Ing. D		ke							
11	Other info	ormation	:	ounced at the b	eginni	ng of th	ne cours	se.			
12	Language Germar										

Wic	de Area Ne	etworks	and ITS	ecurity						WIS	
	ntification nber:	Worklo	oad:	Credits:	Stud	y semes	ster:	Frequenc offer	y of the	Durati	on:
202		180 h		6	1st c	r 2nd s	sem.	Annual (Summe	r)	1 sem	ester
1	Course:	•	F	Planned group	sizes	Scop	e	Actual of time / classroot teaching	om	Self-stu	dy
	Lecture		6	60 students		2	weekly hours	30	h	60	h
	Sem. les	sons	(30 students		1	weekly hours	15	h	30	h
	Exercise Practical or seminar		2	20 students		0	weekly hours	0	h	0	h
			nar 1	5 students		1	weekly hours	15	h	30	h
	Supervised self-study Learning outcomes/c		tudy 6	60 students		0	weekly hours	0	h	0	h
2			-	etences: oe and evalu	ate the	metho	nde of IP	address	ina in lo	cal and w	ıide arı
	- T	nd calcı he stud	ulate co ents wo	oe different a mponents of k independe ne result in the	encryp ently on	tion. a curre	ent topic	in the fie	eld of IT s	security, p	repare
3	Contents										
,	- S - P - A	tructure rotocols .ttacks c .isk anal	and IP on netwo ysis and	nction of loca addressing c ork security, I building a se A and firewal	concep	ts (IPv4	/IPv6),	rks,			
		ryptogi			10,						
				nd virtual priva	ate net\	•	,				
4	Forms o	tep-by- f teaching	-step co	nd virtual priva Infiguration o	ate net\	•	,	environm	ient.		
	Lecture	f teaching e, sem. le	-step co g: essons, j	nfiguration o	ate netv f a prot	•	,	environm	ient.		
	Lecture Participa	f teaching	-step co g: essons, j	nfiguration o	ate netv f a prot	•	,	environm	ent.		
	Lecture	f teaching e, sem. le tion requ	-step co g: essons, j uirements	nfiguration o	ate netv f a prot	•	,	environm	ent.		
5	Participa Formal: Content: Forms o	f teaching e, sem. le tion requ	essons, juirements None None nent:	nfiguration o oractical cou :	ate netv f a prot rse	ectedr	network		ent.		
5	Lecture Participa Formal: Content: Forms o Written	f teaching e, sem. le tion requ f assessm examin	essons, juirements None None nent: ation, co	onfiguration o	ate netv f a proterse rse	ectedr	network		ent.		
5	Lecture Participa Formal: Content: Forms o Written Prerequi	f teachinge, sem. letion requestion requestion f assessment examination site for the second s	essons, juirements None None None ation, cone award	nfiguration o oractical cou :	ate netv f a prot rse xamina s:	ected r	network		ent.		
5 6 7	Lecture Participa Formal: Content: Forms o Written Prerequi Module Applicati	f teaching e, sem. le tion requ f assessm examin site for the examir on of the	essons, juirements None None nent: ation, cone award nation pa	oractical countries of credit points ass and cours (in the followin	ate netv f a proterse xamina s: se asse	ected r	oral exa		ent.		
5 6 7 8	Lecture Participa Formal: Content: Forms o Written Prerequi Module Applicati Electric	f teaching e, sem. le tion requ f assessm examin site for the examir on of the cal Engir	essons, juirements None None nent: ation, cone award mation pare module	ombination exormation	ate netver f a protest f a pro	ected r	oral exa		ent.		
4 5 6 7 8	Lecture Participa Formal: Content: Forms o Written Prerequi Module Applicati Electric Importar	f teaching e, sem. le tion requ f assessm examin site for the examir on of the cal Engir	essons, juirements None None None ation, cone award nation page module egrade for	oractical countries of credit points ass and cours (in the followin	ate netver f a protest f a pro	ected r	oral exa		ent.		
5 6 7 8	Lecture Participa Formal: Content: Forms o Written Prerequi Module Applicati Electric Importar	f teaching a, sem. le tion requ f assessm examin site for the examir on of the cal Engir nce of the	essons, juirements None None None ation, cone award nation page module egrade for	ombination exormation	ate netver f a protest f a pro	ected r	oral exa		ent.		

11	Other information:
	Literature will be announced at the beginning of the course. A script will be provided. Each student becomes a member of a Cisco class and has access to a simulation environment and extensive online curricula. Certificates can be issued for successful participation in Cisco final exams.
12	Language:
	German